EFFECTS OF LOW INTENSITY AEROBIC DANCE EXERCISE ON PHYSIOLOGICAL AND PSYCHOLOGICAL WELL-BEING AMONG WORKING WOMEN

MASTURA JOHAR

FPP 2012 31
EFFECTS OF LOW INTENSITY AEROBIC DANCE EXERCISE ON PHYSIOLOGICAL AND PSYCHOLOGICAL WELL-BEING AMONG WORKING WOMEN

MASTURA JOHAR

DOCTOR OF PHILOSOPHY
UNIVERSITI PUTRA MALAYSIA

2012
EFFECTS OF LOW INTENSITY AEROBIC DANCE EXERCISE ON PHYSIOLOGICAL AND PSYCHOLOGICAL WELL-BEING AMONG WORKING WOMEN

By

MASTURA JOHAR

Thesis Submitted to the School of Graduate Studies, University Putra Malaysia, in Fulfillment of the Requirements for the Degree of Doctor of Philosophy.

February 2012
DEDICATION

To all my beloved children: Mohammad Khuzairee Ibrahim, Muhammad Syafiq Ibrahim and Farah Nadhirah Ibrahim.

Thank you for the support and your patience.
EFFECTS OF LOW INTENSITY AEROBIC DANCE EXERCISE ON PHYSIOLOGICAL AND PSYCHOLOGICAL WELL-BEING AMONG WORKING WOMEN

By

MASTURA JOHAR

February 2012

Chairman: Associate Professor Mohd Sofian Omar Fauzee, PhD
Faculty: Educational Studies

The purpose of this investigation was to evaluate the effect of a 12-week low intensity aerobics dance exercise intervention in the treatment of physiological and psychological well-being among sedentary overweight employed women. Forty subjects were recruited from both the government and private sectors of Putrajaya, Bangi, Serdang and the surrounding community. Subjects were between the ages of 40 and 55 years, had a diagnosis of total stress score above the mean, were not enrolled in any exercise program over the period of one year (sedentary), overweight (Body Mass Index 25 and above) and had a cardiovascular endurance score below the mean. Subjects were randomly either assigned to a 12-week low intensity aerobics dance exercise intervention (“SenamSeri”) or a conventional aerobics dance exercise as the control group. A
pretest-posttest control research design was utilized. Both groups met for 50 minutes, three times a week (36 sessions). The Transactional Approach Multidimensional (Derogatis Stress Profile) examined Total Stress Score while Rosenberg’s Scale measured self-esteem; both were to assess changes in the psychological well-being. Additionally, physical fitness for health related components (ACSM) which included body composition, flexibility, muscle strength & endurance, cardiovascular endurance and the selected health parameters namely body mass index, resting heart rate and blood pressure were used to assess changes in the physiological well-being, respectively, as a result of the intervention at one, eight and 12-weeks. Statistical analysis included (group x time) repeated measures ANOVA and MANOVA to determine between and within group mean differences. The hypotheses of the thesis received significant support. When the results for physiological well-being variables were considered separately, the only difference to reach statistical significance, using a Bonferroni adjusted alpha level of 0.01, was body composition, \( F(1, 38) = 6.65, p < .01 \), eta square = .149, and Flexibility \( F(1, 38) = 13.72, p < .01 \), eta square = .265. An inspection of the mean scores indicated that the treatment group reported an improvement for body composition (\( M = 27.85, SD = 1.15 \)) and for flexibility (\( M = 49.85, SD = 1.63 \)) compared to the control group which reported body composition of (\( M = 27.85, SD = 1.14 \)) and flexibility of (\( M = 49.85, SD = 1.63 \)). Interestingly, the most obvious finding to emerge from this thesis was that the intervention group benefited significantly
in terms of psychologically well-being, total stress score, $F(1, 38) = 4.69, p < .05$, eta square = .11, and self-esteem $F(1, 38) = 4.27, p < .05$, eta square = .10. An inspection of the mean scores indicated that the treatment group “SenamSeri” reported lower levels of stress after 12 weeks ($M = 39.00, SD = 2.36$) and improvement in self-esteem ($M = 34.45, SD = 1.18$) than the control group which underwent the conventional aerobics dance exercise and charted a higher total stress level ($M = 40.75, SD = 1.94$) and lower self-esteem ($M = 30.50, SD = 2.36$). It is concluded that low intensity aerobics dance exercise intervention of “SenamSeri” had contributed greatly to the positive findings concerning the physiological and psychological well-being among sedentary overweight employed women.
KESAN TARIAN SENAMAN AEROBIK BERINTENSITI RENDAH TERHADAP KESEJAHTERAAN FISIOLOGI DAN PSIKOLOGI DI KALANGAN WANITA BEKERJA.

Oleh

MASTURA JOHAR

Februari 2012

Pengerusi:  Professor Madya Mohd Sofian Omar Fauzee, PhD

Faculti:  Pengajian Pendidikan

Kajian ini adalah untuk menilai kesan senaman 12 minggu terhadap intervensi tarian aerobik berintensiti rendah dalam rawatan terhadap kesejahteraan fisiologi dan psikologi di kalangan wanita bekerja yang berlebihan berat badan dan mengamalkan gaya hidup sedentari. Sejumlah empat puluh subjek telah dilatih dan subjek merupakan wanita yang bekerja dan berumur di antara 40 hingga 55 tahun yang mengalami diagnosis skor jumlah tekanan melebihi mean, skor komponen ketahanan jantung pula di bawah mean dan tidak terlibat dalam sebarang program senaman lebih dari setahun serta berlebihan berat badan (Indeks Jisim Badan 25 dan ke atas). Subjek secara rawak mendaftar sama ada kumpulan senaman berintensiti rendah bagi tempoh 12 minggu ataupun kumpulan kawalan bagi senaman tarian aerobik konvensional dan
menggunakan kaedah kajian kawalan, iaitu ujian pra dan pasca (pretest and posttest). Kedua-dua kumpulan ini mengadakan perjumpaan selama 50 minit, tiga kali seminggu (36 sesi). Pendekatan Multidimensi Transactional (Derogatis Stress Profil - DSP) digunakan untuk menguji Skor Jumlah Tekanan sementara Skala Rosenberg diguna untuk mengukur penghargaan kendiri; kedua-duanya adalah untuk mendapatkan perubahan dalam kesejahteraan psikologi. Komponen kecerasan fiziwal untuk kesihatan melibatkan komposisi badan, fleksibiliti, kekuatan otot dan ketahanan, ketahanan kardiovaskular dan angkubah kesihatan terpilih seperti indeks jisim badan, kadar denyutan jantung semasa berehat dan tekanan darah telah juga digunakan bagi mendapat perubahan dalam kesejahteraan fisiologi dan psikologi. Selain dari analisis statistik deskriptif, statistik ulangan ukuran ANOVA dan MANOVA juga diaplikasikan bagi menentukan keberkesanan dalam peningkatan perbezaan mean bagi kedua-dua kumpulan kajian. Keputusan menunjukkan bahawa subjek dalam kedua-dua kumpulan intervensi dan kawalan mengalami peningkatan yang positif dalam ketiga-tiga objektif kajian. Menariknya, dari lima komponen kesejahteraan fisiologi, hanya dua menunjukkan perbezaan yang signifikan iaitu komponen fleksibiliti F (1, 38) = 13.72, p < .01, eta square = .265 dan komposisi badan F (1, 38) = 6.65, p < .01, eta square = .149 setelah tahap alpha Bonferroni 0.01 di ambilkira, dengan perbezaan peningkatan kumpulan intervensi, iaitu komposisi badan (M = 27.85, SD = 1.15) dan fleksibiliti (M = 49.85, SD = 1.63) berbanding kumpulan kawalan komposisi badan (M =
27.85, SD = 1.14) dan flesibiliti (M = 49.85, SD = 1.63). Kesejahteraan psikologi telah mempamerkan kesan yang signifikan dengan skor jumlah tekanan F (1, 38) = 4.69, p < .05, eta square = .11, dan penghargaan kendiri F (1, 38) = 4.27, p < .05, eta square = .10. Pemeriksaan skor mean menunjukkan kumpulan intervensi “SenamSeri” mengalami penurunan skor jumlah tekanan selepas 12 minggu (M = 39.00, SD = 2.36) dan peningkatan penghargaan kendiri (M = 34.45, SD = 1.18) berbanding kumpulan kawalan skor jumlah tekanan lebih tinggi (M = 40.75, SD = 1.94) dan penghargaan kendiri lebih rendah (M = 30.50, SD = 2.36). Kesimpulannya, kumpulan intervensi iaitu “SenamSeri” senaman aerobik berintensiti rendah telah menyumbang dapatan yang positif terhadap kesejahteraan fisiologi dan psikologi di kalangan wanita berkerja yang sedentari dan berlebihan berat.
ACKNOWLEDGEMENTS

In The name of Allah, The Most Beneficent, The Most Gracious

Praise and glory be to Allah. My deepest heartfelt gratitude and thanks to Allah for giving me wisdom, grace, and perseverance in completing my PhD research and thesis.

My sincere gratitude and appreciation to members of my supervisory committee: Professor Dr Mohd Sofian Omar Fauzee, Associate Professor Dr Bahaman Abu Samah, and Professor Muhammad Nazrul Hakim Abdullah for their professional guidance and valuable advice which have contributed to my success of this study.

My sincere appreciation to all the participants involved in this experimental study. Without their cooperation, this research could not have been possible. My utmost appreciation goes to Mr Mohd Arff Ahmad Tarmizi Dean College of Foundation & General Studies UNITEN, Mr Zulfakar, Miss Normaliza, Miss Nor Hayuni, Dr Mardian Shah Omar, Dr Marniyati, Dr Hayder Salman, Mr Tu, Miss Roszini, and Miss Norshila Abdullah who edited my English language and other individuals for their moral and practical support. Thanks to all my friends who have helped me in one way or another. My deepest appreciation also goes to my brothers and sisters for their concern, encouragement, and continuous support during the darkest days of my life.

Finally yet importantly, my gratitude and love to my children, Mohammad Khuzairee, Muhammad Syafiq, Farah Nadhirah and my daughter in law Norsyareena for having patience in my struggle to complete this doctoral thesis for the past four years. May Allah bless us.
I certify that a Thesis Examination Committee has met on 9.2.2012 to conduct the final examination of Mastura Johar on her thesis entitled “Effects of Low Intensity Aerobic Dance Exercise on Physiological and Psychological Well-Being among Working Women” in accordance with Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U. (A) 106] 15 March 1998. The Committee recommends that the student be awarded the (Doctor of Philosophy).

Members of the Examination Committee are as follows:

Kok Lian Yee, PhD
Senior Lecturer
Faculty Education Studies
Universiti Putra Malaysia
(Chairman)

Samsilah Roslan, PhD
(Associate Professor)
Pejabat Timbalan Naib Canselor (Penyelidikan & Inovasi)
Universiti Putra Malaysia
(Internal Examiner)

Soh Kim Geok, PhD
(Associate Professor)
Faculty Education Studies
Universiti Putra Malaysia
(Internal Examiner)

Name of External Examiner, PhD
(Professor)
Sports Department
Sheffield Hallam University
United Kingdom
(External Examiner)

SEOW HENG FONG, PhD
Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia
This thesis was submitted to the Senate of University Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor of Philosophy. The members of the supervisory Committee were as follows:

Mohd Sofian Omar Fauzee, PhD
Associate Professor
Faculty Educational Studies
Universiti Putra Malaysia
(Chairman)

Bahaman Abu Samah, PhD
Associate Professor
Faculty Educational Studies
Universiti Putra Malaysia
(Members)

Muhammad Nazrul Hakim Abdullah, PhD
Professor
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Members)

BUJANG BIN KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
University Putra Malaysia.
DECLARATION

I declare that the thesis is my original work except for quotations and citations, which have been duly acknowledged. I also declare that it has not been previously, and is not concurrently, submitted for any other degree at University Putra Malaysia or at any other institutions.

_______________________
MASTURA JOHAR

Date: 9 February 2012
# TABLES OF CONTENT

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ABSTRAK</td>
<td>v</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>viii</td>
</tr>
<tr>
<td>APPROVAL</td>
<td>ix</td>
</tr>
<tr>
<td>DECLARATION</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xvii</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xix</td>
</tr>
<tr>
<td>LIST OF ABBREVIATIONS</td>
<td>xxi</td>
</tr>
</tbody>
</table>

## CHAPTER

1 INTRODUCTION

1.1 Background of the Study  
1.2 Statement of Problems  
1.3 Research Objectives  
1.4 Research Questions  
1.5 Research Hypotheses  
1.6 Definition of Terms  
  1.6.1 Physiological Well-being  
  1.6.2 Aerobics Exercise  
  1.6.3 Low Impact Aerobics Dance Exercise  
  1.6.4 Body mass Index (BMI)  
  1.6.5 Heart Rate  
  1.6.6 Blood Pressure  
  1.6.7 Health  
  1.6.8 Health Related Fitness  
    1.6.8.1 Body Composition  
    1.6.8.2 Flexibility  
    1.6.8.3 Muscular Strength  
    1.6.8.4 Muscular Endurance  
    1.6.8.5 Cardiovascular Endurance (Heart Endurance)  
  1.6.9 Physiological wellbeing  
    1.6.9.1 Stress  

xii
1.6.9.2 General Self-Esteem
1.6.10 Working Women
1.7 Significance of Research
1.8 Limitation and Delimitation of the Study
1.8.1 Limitation
1.8.2 Delimitation

2 LITERATURE REVIEW
2.1 Introduction
2.2 Theoretical Approaches of Physiological Well-being
2.2.1 The Relationship between Physical Activities
   Physical Fitness and Health
2.2.2 Health Related Fitness
2.2.3 Low Intensity Aerobic Group Dance Intervention
2.3 Theoretical Approaches of Psychological Well-being
2.3.1 Stress Theory
2.3.1.1 Response Approach
2.3.1.2 Stimulus Approach
2.3.1.3 Transactional Approach
2.3.2 Self-Esteem Theory
2.4 Aerobics Dance Exercise on Health Effect
2.4.1 Body Mass Index
2.4.2 Blood Pressure
2.4.3 Resting Heart Rate
2.5 Aerobics Dance on Physiological Effect
2.5.1 Physical Fitness Components (Health Related)
2.6 Aerobics Dance on Psychological Effects
2.6.1 Aerobics Exercise on Stress Effect
2.6.2 Aerobics Exercise and General Self – Esteem
2.7 Aerobics Exercise on Music Effect
2.8 Theoretical Framework
2.9 Summary and Conclusion

3 METHODOLOGY
3.1 Introduction
3.2 Research Designs
3.3 Conceptual Framework
3.4 Subjects of Study and Sampling
3.5 Instrumentation
3.5.1 Selected Health Parameters – BMI, RHR and BP
   3.5.1.1 Body Mass Index (BMI)
   3.5.1.2 Blood Pressure (BP)
   3.5.1.3 Resting Heart Rate (RHR)
3.5.2 Physiological Well-Being
   3.5.2.1 The Physical Activity Readiness
       Questionnaire (PAR-Q) and Test 125
   3.5.2.2 Health-Related Fitness Test 125
   3.5.2.3 Cardiovascular Endurance
       (Test - 1 mile walk test) 126
   3.5.2.4 Flexibility Test
       (Modified Sit and Reach Test) 128
   3.5.2.5 Muscular Strength Test
       (5 Levels Abdominal Test) 129
   3.5.2.6 Muscular Endurance
       (Abdominal Crunches) 130
   3.5.2.7 Body Composition 131
3.5.3 Psychological Well-being
   3.5.3.1 Derogatis Stress Profile (DSP) 133
   3.5.3.2 General Self-Esteem 135
3.6 Data Collection Procedures 137
3.7 Control of Extraneous Variables and Treats to Internal Validity 138
3.8 Low Impact Dance Intervention Routine 141
3.9 Phases in the Intervention Routine 142
   3.9.1 Phase 1 – Warm-up 142
   3.9.2 Phase 2 – Cardiovascular Endurance 143
   3.9.3 Phase 3 – Muscle Conditioning 146
   3.9.4 Phase 4 – Cooling Down 146
3.10 Control Group – Conventional Aerobics Dance Routine 148
3.11 Pilot Study 150
3.12 Data Analysis (Statistic Tests) 151
   3.12.1 Descriptive Statistics 152
   3.12.2 Analysis of Variance (ANOVA) 153
   3.12.3 Multivariate Analysis of Variance (MANOVA) 154
   3.12.4 Exploratory Data Analysis 156
   3.12.5 Descriptive Data Analysis 161
3.13 Conclusion 165

4 RESULTS AND DISCUSSION
4.1 Introduction 167
4.2 Statistic Data Analysis 168
   4.2.1 Selected Health Parameters 168
       4.2.1.1 Resting Heart Rate 168
       4.2.1.2 Body Mass Index 172
       4.2.1.3 Blood Pressure 176
       4.2.1.4 Overall Selected Health Parameters 182
4.14 Exploratory Data Analysis 183
4.3 Discussion on Selected Health Parameters Effect 184
  4.3.1 Body Mass Index Effect 185
  4.3.2 Resting Heart Rate Effect 188
  4.3.3 Blood Pressure Effect 189
4.4 Physiological Well-being (Physical Fitness) 192
  4.4.1 Body Composition 192
  4.4.2 Flexibility 196
  4.4.3 Cardiovascular Endurance 200
  4.4.4 Muscular Endurance 204
  4.4.5 Muscular Strength 208
  4.4.6 Overall Physical Fitness Components 212
4.5 Discussion on Overall Physical Fitness Components 216
  4.5.1 Body Composition Effect 218
  4.5.2 Flexibility Effect 221
4.6 Psychological Well-being 224
  4.6.1 Total Stress Score 224
  4.6.2 General Self-esteem 231
  4.6.3 Overall Psychological Well-Being 233
4.7 Discussion on Psychological Well-being Effect 235
4.8 Low Intensity Aerobic Dance Intervention Effect 239
4.9 Dance and Music effect 241
4.10 Intensity and Timing Effect 247
4.11 Conclusion 250

5 SUMMARY, CONCLUSION, AND RECOMMENDATIONS FOR FUTURE STUDIES
  5.1 Introduction 253
  5.2 Summary of the Results 254
    5.2.1 Selected Health Parameters 258
    5.2.2 Physiological Well-being 259
    5.2.3 Psychological Well-being 262
  5.3 Conclusion 265
  5.4 Recommendations for Future Research 269

BIBLIOGRAPHY

APPENDIXES
  A1 PAR-Q Questionnaire
  A2 Derogatis Stress Profile (DSP)
  A3 Payment for Purchasing Derogatis Stress Profile (DSP)
  A4 Rosenberg Self-Esteem Scale
  A5 Request for Fitness Test Expert from Sports Academy UPM
  A6 The Physiology Well-being Fitness Profile
B1 Reviewed & verification of “SenamSeri” Module for Treatment Group
B2 Payment Composed new music for treatment group
B3 The comparison between intervention and control groups on aerobic dance routine and protocol
C1 Histogram Normality Graph: Selected Health Parameters
C2 Histogram Normality Graph: Physiological Well-Being
C3 Histogram Normality Graph: Psychological Well-Being

BIODATA OF STUDENT
PUBLICATION & CONFERENCES